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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,901	09/23/2003	Joseph Cargnelli	9351-244	8648

1059 7590 03/06/2006

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EXAMINER

ALEJANDRO, RAYMOND

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 03/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/667,901

Applicant(s)

CARGNELLI ET AL.

Examiner

Raymond Alejandro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for domestic priority under 35

U.S.C. 119(e). *Drawings*

2. The drawings were received on 09/23/03. These drawings are acceptable.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
4. The disclosure is objected to because of the following informalities: the current status of all non-provisional application should be updated (*whether abandoned, or patented and its patent number*). For example, see paragraph 0038. Appropriate correction is required.
5. The disclosure is objected to because of the following informalities: the specification contains terms or words which are incomplete, for example, the word "*pulled*" in paragraph 0003 is incomplete (i.e. "*pull d*"); and the phrase "*Summary f th_ Invention*" (between paragraphs 0006 and 0007) is incomplete. Appropriate correction is required.
6. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

7. Claim 4 is objected to because of the following informalities: the terms “*periph_ral*” and “*corr_lated*” are incomplete. Appropriate correction is required.
8. Claim 7 is objected to because of the following informalities: the term “*pow_r*” is incomplete. Appropriate correction is required.
9. Claim 8 is objected to because of the following informalities: the term “*wh_rein*” is incomplete. Appropriate correction is required.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
11. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
12. Claims 1-10, as a whole, make reference to several limitations including the recitation of “operation” or “characteristics” such as “*fuel cell operation characteristics*”; “*the spectrum of the at least one fuel cell operation characteristic*”; “*respective operational characteristic*”; “*fuel cell operation characteristic spectrum*”; “*a plurality of operational characteristics*”, “*the range of the fuel cell operation characteristic*” and “*the plurality of levels of the at least one fuel cell operation characteristic*”. It seems from applicant’s disclosure that each particular recitation independently claims separate and distinct “operational-characteristics”. However, the claim language, as currently set forth, is very confusing and does not permit to clearly identify how

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each of the particular "operational-characteristics" is related or unrelated to the remainder of the claimed features or among them. Thus, the claims are found to be indefinite because they amount to an uncertain gap between the claimed limitations. Applicant's cooperation is requested to better identify, reflect or name the specifically claimed operation-characteristics so as to undoubtedly indicate the intended scope of the present claims.

13. Claim 1 recites the limitation "*the spectrum*" in line 11. There is insufficient antecedent basis for this limitation in the claim.

14. Claim 9 recites the limitation "*the range of the fuel cell operation characteristic*" in lines 11-12. There is insufficient antecedent basis for this limitation in the claim.

15. Claim 10 recites the limitation "*the plurality of levels of the at least one fuel cell operation characteristic*" in lines 13-14. There is insufficient antecedent basis for this limitation in the claim.

To the extent the present claims were understood by the examiner (See the 35 USC 112 rejection above), please note the following art rejections.

Claim Rejections - 35 USC § 102

16. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

17. Claims 1-4 and 6-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Blum et al 2005/0008905.

The present claims are directed to a fuel cell system and method of operating the same wherein the disclosed inventive concept comprises the specific controlling of operation characteristics of the fuel cell system.

Regarding claims 1 and 6:

Blum et al disclose a method and apparatus for regulating electrical power output of a fuel cell system (TITLE/ABSTRACT). The fuel cell system also contains a controller to set the mass flow of the supply fuel and the mass flow of the oxidant stream to the fuel processing system; wherein the mass flow of the hydrogen-rich gas can be set in dependence on the dynamic response of the system (ABSTRACT). The fuel cell to supply power to the electrical load is disclosed (P. 0030). In this case, the fuel cell peripheral is the reactant supply line (P. 0028).

It is disclosed that the controller controls the system based upon or using measured values or calculated values of the mass flow of the hydrogen rich-gas (P. 0032). Of particular interest is that Blum et al employ a relationship between the current demand and the fuel mass flow as a function of time to control and operate the fuel cell system (P. 0045-0046/ FIGURE 3). *Thus, Blum et al specifically use a measured fuel cell operation characteristic to control another respective operation characteristic. That is to say, the another respective operation characteristic is responsive to the measured fuel cell operation characteristic as best understood by the examiner.*

Figure 3 below illustrate the so-called relationship between the current demand and the flow of hydrogen:

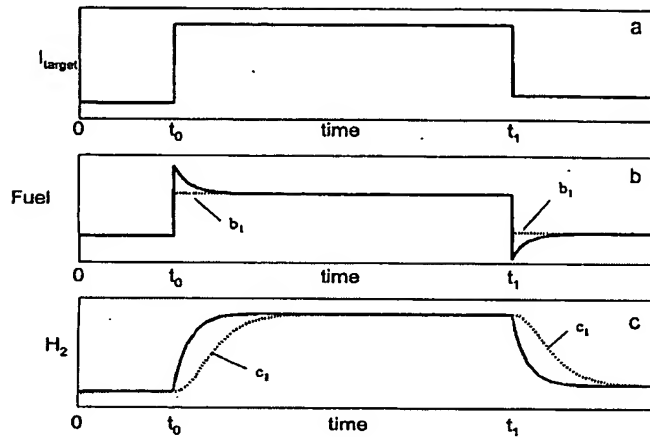


Fig. 3

Examiner's note: the limitation "adapted to" does not distinguish over prior art because the recitation that an element/feature/member is "adapted to" perform a function is not a positive limitation but only requires the ability to so perform.

As to claims 2-3 and 7-8:

Blum et al control the fuel mass flow in response to the current demand of the system (P. 0045-0046). In this case, the fuel cell peripheral is the reactant supply line, specifically the fuel supply line or oxidant supply line (P. 0028).

With reference to claims 4 and 9:

It is disclosed that the controller controls the system based upon or using measured values or calculated values of the mass flow of the hydrogen rich-gas (P. 0032). Of particular interest is that Blum et al employ a relationship between the current demand and the fuel mass flow as a function of time to control and operate the fuel cell system (P. 0045-0046/ FIGURE 3). Thus, Blum et al readily envision using stored values as fuel cell operational threshold.

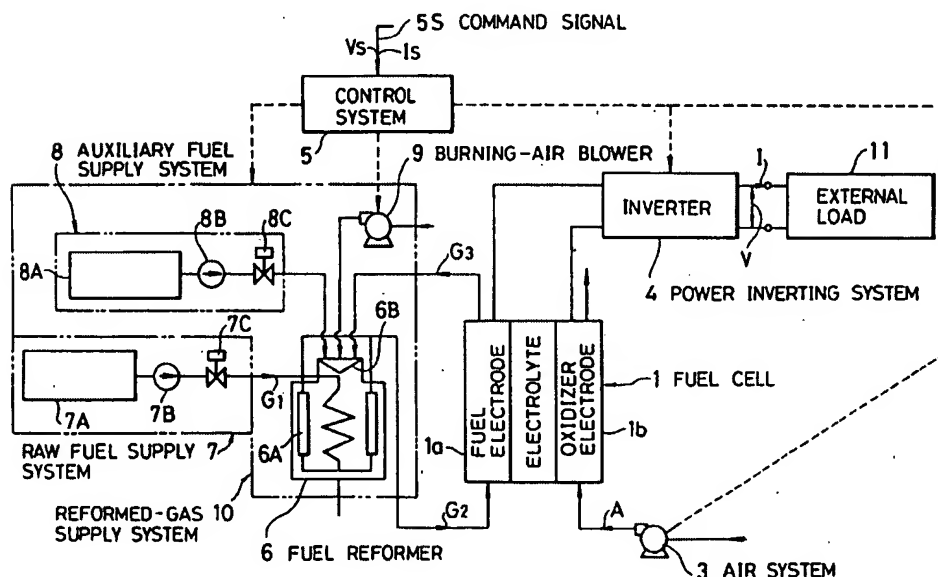
Thus, the claims are anticipated.

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18. Claims 1 and 6 are (*at least*) rejected under 35 U.S.C. 102(b) as being clearly anticipated by Harashima 5290641.

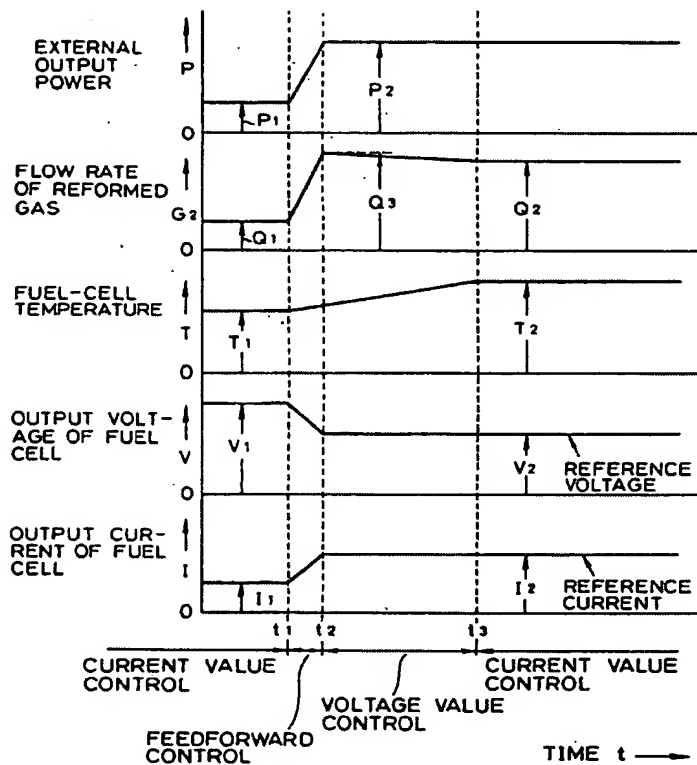
Harashima disclose method of controlling operation of fuel cell power supply (TITLE). Essentially, a fuel cell power supply in which the flow rates of reactant gases are set at a flow rates required for a steady state operation plus predetermined extra amounts when an output power increase command is issued (ABSTRACT). Harashima teaches supplying the power of the fuel cell to a load (COL 1, lines 30-32). The control of the entire system is accomplished according to control signals from a control system which receives a command signal that designates an output power of the fuel cell (COL 1, lines 32-35).

Figure 1 depicts a fuel cell system including a fuel cell 1; and control system 5 and reactant supply means peripheral:



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Additionally, **Figure 6** below is illustrative of the general variable considerations and operational characteristics of the fuel cell employed to control the fuel cell system, particularly, output power, flow rate, output voltage and output current:

**FIG. 6**

Examiner's note: the limitation "adapted to" does not distinguish over prior art because the recitation that an element/feature/member is "adapted to" perform a function is not a positive limitation but only requires the ability to so perform.

Thus, the instant claims are anticipated.

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19. Claims 1-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Ueda et al 2005/0136311.

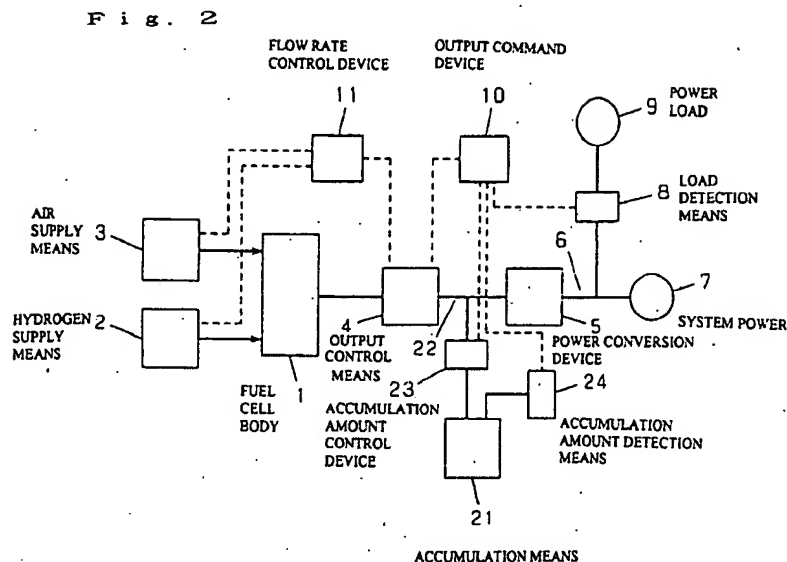
Concerning claims 1 and 6:

In general, Ueda et al disclose power generation control system and method (TITLE). A fuel cell power generation system including: load detection means of detecting power requested by a load; and output control means of accumulating a time at which a detected power requested by the load is equal to or larger than a predetermined value when a fuel cell body does not generate power to be supplied to the load, and allowing the fuel cell body to start generating power to be supplied to the load according to a predetermined rule based on an accumulation result (ABSTRACT).

Disclosed is that at an external load command, a power control unit 35 controls a flow rate control unit 36 which controls the flow rate of the hydrogen supply by the hydrogen supply means (*the reactant supply means peripheral*) and the flow rate of the air supply by the air supply means 33 such that the flow rates can be optimum values; and the power converter controls the amount of electricity output by the fuel cell body, thereby successfully controlling the output power (P. 0228; 0002; 0009; 0021-0025). *Thus, Ueda et al show with sufficient specificity to control the flow rate of reactant in response to output power requirements.*

Figure 2 illustrates several features including the output control means; the load; the load detection means; the accumulation amount control device and the like.

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With respect to claims 2-3 and 7-8:

Ueda et al teach that at an external load command, a power control unit 35 controls a flow rate control unit 36 which controls the flow rate of the hydrogen supply by the hydrogen supply means (*the reactant supply means peripheral*) and the flow rate of the air supply by the air supply means 33 such that the flow rates can be optimum values; and the power converter controls the amount of electricity output by the fuel cell body, thereby successfully controlling the output power (P. 0228; 0002; 0009; 0021-0025). *Thus, Ueda et al show with sufficient specificity to control the flow rate of reactant in response to output power requirements.*

On the matter of claims 4 and 9:

Ueda et al disclose the employment of output control means of accumulating a time at which a detected power requested by the load is equal to or larger than a predetermined value (ABSTRACT). *In this instant, the predetermined value corresponds to the stored valued in the memory of the control system.*

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As far as claims 5 and 10:

The idle level does occur when a fuel cell body does not generate power to be supplied to the load, and allowing the fuel cell body to start generating power to be supplied to the load according to a predetermined rule based on an accumulation result (ABSTRACT).

Thus, the present claims are anticipated.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (571) 272-1282. The examiner can normally be reached on Monday-Thursday (8:00 am - 6:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Raymond Alejandro
Primary Examiner
Art Unit 1745



RAYMOND ALEJANDRO
PRIMARY EXAMINER